



SEQUENCE LISTING

<110> Nobuo SAKAGUCHI et al.

<120> ANTI-HIV ANTIBODY

<130> 4456-0109PUS1

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<160> 9

<170> PatentIn version 3.2

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<211> 6429

<212> DNA

<213> Mus musculus

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<221> CDS

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Thr	Pro	Ser	Gly	Gly	Ser	His	Ser	Ser	Ser	Leu	Pro	Ala	Phe	Gly	Leu		
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Gln His Phe	His Gln Gln Leu	Leu Arg Asn Ala Ala	Trp Ala Pro
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Thr Leu Cys Ile Asn His Lys Leu Arg Asp Trp Thr Pro Pro Arg	
1740 1745 1750	
ctc cct gtc aca tta gag gcg ctg agt gaa gat ggt caa ata tgt	5684
Leu Pro Val Thr Leu Glu Ala Leu Ser Glu Asp Gly Gln Ile Cys	
1755 1760 1765	
gtg tat ttt ttc aaa aac ctt tta aga aaa tac cac gtt ccc tcg	5729
Val Tyr Phe Phe Lys Asn Leu Leu Arg Lys Tyr His Val Pro Ser	
1770 1775 1780	
tca tgg gaa cag gcc aga atg cag acg cag cgg gaa ctg cag ctg	5774
Ser Trp Glu Gln Ala Arg Met Gln Thr Gln Arg Glu Leu Gln Leu	
1785 1790 1795	
agt cat gga cgt tcg ggg atg agg tcc atc cat cct cct aca agc	5819
Ser His Gly Arg Ser Gly Met Arg Ser Ile His Pro Pro Thr Ser	
1800 1805 1810	
act ttt cct act cca ttg ctt cat gta cac cag aaa ggg aag aaa	5864

Thr	Phe	Pro	Thr	Pro	Leu	Leu	His	Val	His	Gln	Lys	Gly	Lys	Lys		
		1815					1820					1825				
aag	gaa	gag	agt	ggc	cga	gag	ggg	agc	ctc	agt	aca	gag	gac	ctc	5909	
Lys	Glu	Glu	Ser	Gly	Arg	Glu	Gly	Ser	Leu	Ser	Thr	Glu	Asp	Leu		
		1830					1835					1840				
ctg	cgg	ggg	gct	tct	gca	gaa	gag	ctc	ctg	gca	cag	agt	ctg	tcc	5954	
Leu	Arg	Gly	Ala	Ser	Ala	Glu	Glu	Leu	Leu	Ala	Gln	Ser	Leu	Ser		
		1845					1850					1855				
agc	agt	ctt	ctg	gaa	gag	aag	gaa	gag	aac	aag	agg	ttt	gaa	gat	5999	
Ser	Ser	Leu	Leu	Glu	Glu	Lys	Glu	Glu	Asn	Lys	Arg	Phe	Glu	Asp		
		1860					1865					1870				
caa	ctt	cag	cag	tgg	tta	tcg	caa	gac	tca	cag	gca	ttc	aca	gag	6044	
Gln	Leu	Gln	Gln	Trp	Leu	Ser	Gln	Asp	Ser	Gln	Ala	Phe	Thr	Glu		
		1875					1880					1885				
tca	act	cgg	ctt	cct	ctc	tac	ctc	cct	cag	acg	cta	gtg	tcc	ttt	6089	
Ser	Thr	Arg	Leu	Pro	Leu	Tyr	Leu	Pro	Gln	Thr	Leu	Val	Ser	Phe		
		1890					1895					1900				
cct	gat	tct	atc	aaa	act	cag	acc	atg	gtg	aaa	aca	tct	aca	agt	6134	
Pro	Asp	Ser	Ile	Lys	Thr	Gln	Thr	Met	Val	Lys	Thr	Ser	Thr	Ser		
		1905					1910					1915				
cct	cag	aat	tca	gga	aca	gga	aag	cag	ttg	agg	ttc	tca	gag	gca	6179	
Pro	Gln	Asn	Ser	Gly	Thr	Gly	Lys	Gln	Leu	Arg	Phe	Ser	Glu	Ala		
		1920					1925					1930				
tcc	ggt	tca	tcc	ctg	acg	gaa	aag	ctg	aag	ctc	ctg	gaa	agg	ctg	6224	
Ser	Gly	Ser	Ser	Leu	Thr	Glu	Lys	Leu	Lys	Leu	Leu	Glu	Arg	Leu		
		1935					1940					1945				
atc	cag	agc	tca	agg	gcg	gaa	gaa	gca	gcc	tcc	gag	ctg	cac	ctc	6269	
Ile	Gln	Ser	Ser	Arg	Ala	Glu	Glu	Ala	Ala	Ser	Glu	Leu	His	Leu		
		1950					1955					1960				
tct	gca	ctg	ctg	gag	atg	gtg	gac	atg	tag	ctgtctgacg	ggagacggat				6319	
Ser	Ala	Leu	Leu	Glu	Met	Val	Asp	Met								
		1965					1970									
ctctaattca	taatgctttg	tctgtattca	attgtgttat	agatgctgtt	ggaaatgtga	6379										
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Val Ser Ser Ser Thr Thr Gly Thr Tyr Gln Thr Lys Ser Pro Phe Arg
 20 25 30

Phe Gly Gln Pro Ser Leu Phe Gly Gln Asn Ser Thr Pro Ser Lys Ser
 35 40 45

Leu Ala Phe Ser Gln Val Pro Ser Phe Ala Thr Pro Ser Gly Gly Ser
 50 55 60

His Ser Ser Ser Leu Pro Ala Phe Gly Leu Thr Gln Thr Ser Ser Val
 65 70 75 80

Gly Leu Phe Ser Ser Leu Glu Ser Thr Pro Ser Phe Ala Ala Thr Ser
 85 90 95

Ser Ser Ser Val Pro Gly Asn Thr Ala Phe Ser Phe Lys Ser Thr Ser
 100 105 110

Ser Val Gly Val Phe Pro Ser Gly Ala Thr Phe Gly Pro Glu Thr Gly
 115 120 125

Glu Val Ala Gly Ser Gly Phe Arg Lys Thr Glu Phe Lys Phe Lys Pro
 130 135 140

Leu Glu Asn Ala Val Phe Lys Pro Ile Pro Gly Pro Glu Ser Glu Pro
 145 150 155 160

Glu Lys Thr Gln Ser Gln Ile Ser Ser Gly Phe Phe Thr Phe Ser His
 165 170 175

Pro Val Gly Ser Gly Ser Gly Gly Leu Thr Pro Phe Ser Phe Pro Gln
 180 185 190

Val Thr Asn Ser Ser Val Thr Ser Ser Ser Phe Ile Phe Ser Lys Pro
 195 200 205

Val Thr Ser Asn Thr Pro Ala Phe Ala Ser Pro Leu Ser Asn Gln Asn
 210 215 220

Val Glu Glu Glu Lys Arg Val Ser Thr Ser Ala Phe Gly Ser Ser Asn
 225 230 235 240

Ser Ser Phe Ser Thr Phe Pro Thr Ala Ser Pro Gly Ser Leu Gly Glu
245 250 255

Pro Phe Pro Ala Asn Lys Pro Ser Leu Arg Gln Gly Cys Glu Glu Ala
260 265 270

Ile Ser Gln Val Glu Pro Leu Pro Thr Leu Met Lys Gly Leu Lys Arg
275 280 285

Lys Glu Asp Gln Asp Arg Ser Pro Arg Arg His Cys His Glu Ala Ala
290 295 300

Glu Asp Pro Asp Pro Leu Ser Arg Gly Asp His Pro Pro Asp Lys Arg
305 310 315 320

Pro Val Arg Leu Asn Arg Pro Arg Gly Gly Thr Leu Phe Gly Arg Thr
325 330 335

Ile Gln Glu Val Phe Lys Ser Asn Lys Glu Ala Gly Arg Leu Gly Ser
340 345 350

Lys Glu Ser Lys Glu Ser Gly Phe Ala Glu Pro Gly Glu Ser Asp His
355 360 365

Ala Ala Val Pro Gly Gly Ser Gln Ser Thr Met Val Pro Ser Arg Leu
370 375 380

Pro Ala Val Thr Lys Glu Glu Glu Glu Ser Arg Asp Glu Lys Glu Asp
385 390 395 400

Ser Leu Arg Gly Lys Ser Val Arg Gln Ser Lys Arg Arg Glu Glu Trp
405 410 415

Ile Tyr Ser Leu Gly Gly Val Ser Ser Leu Glu Leu Thr Ala Ile Gln
420 425 430

Cys Lys Asn Ile Pro Asp Tyr Leu Asn Asp Arg Ala Ile Leu Glu Lys
435 440 445

His Phe Ser Lys Ile Ala Lys Val Gln Arg Val Phe Thr Arg Arg Ser
450 455 460

Lys Lys Leu Ala Val Ile His Phe Phe Asp His Ala Ser Ala Ala Leu
 465 470 475 480

Ala Arg Lys Lys Gly Lys Gly Leu His Lys Lys Asp Val Val Ile Phe Trp
 485 490 495

His Lys Lys Lys Ile Ser Pro Ser Lys Lys Leu Phe Pro Leu Lys Glu
 500 505 510

Lys Leu Gly Glu Ser Glu Ala Ser Gln Gly Ile Glu Asp Ser Pro Phe
 515 520 525

Gln His Ser Pro Leu Ser Lys Pro Ile Val Arg Pro Ala Ala Gly Ser
 530 535 540

Leu Leu Ser Lys Ser Ser Pro Val Lys Lys Pro Ser Leu Leu Lys Met
 545 550 555 560

His Gln Phe Glu Ala Asp Pro Phe Asp Ser Gly Ser Glu Gly Ser Glu
 565 570 575

Gly Leu Gly Ser Cys Val Ser Ser Leu Ser Thr Leu Ile Gly Thr Val
 580 585 590

Ala Asp Thr Ser Glu Glu Lys Tyr Arg Leu Leu Asp Gln Arg Asp Arg
 595 600 605

Ile Met Arg Gln Ala Arg Val Lys Arg Thr Asp Leu Asp Lys Ala Arg
 610 615 620

Ala Phe Val Gly Thr Cys Pro Asp Met Cys Pro Glu Lys Glu Arg Tyr
 625 630 635 640

Leu Arg Glu Thr Arg Ser Gln Leu Ser Val Phe Glu Val Val Pro Gly
 645 650 655

Thr Asp Gln Val Asp His Ala Ala Ala Val Lys Glu Tyr Ser Arg Ser
 660 665 670

Ser Ala Asp Gln Glu Glu Pro Leu Pro His Glu Leu Arg Pro Ser Ala
 675 680 685

Val Leu Ser Arg Thr Met Asp Tyr Leu Val Thr Gln Ile Met Asp Gln

690	695	700
Lys Glu Gly Ser Leu Arg Asp Trp Tyr Asp Phe Val Trp Asn Arg Thr 705 710 715 720		
Arg Gly Ile Arg Lys Asp Ile Thr Gln Gln His Leu Cys Asp Pro Leu 725 730 735		
Thr Val Ser Leu Ile Glu Lys Cys Thr Arg Phe His Ile His Cys Ala 740 745 750		
His Phe Met Cys Glu Glu Pro Met Ser Ser Phe Asp Ala Lys Ile Asn 755 760 765		
Asn Glu Asn Met Thr Lys Cys Leu Gln Ser Leu Lys Glu Met Tyr Gln 770 775 780		
Asp Leu Arg Asn Lys Gly Val Phe Cys Ala Ser Glu Ala Glu Phe Gln 785 790 795 800		
Gly Tyr Asn Val Leu Leu Asn Leu Asn Lys Gly Asp Ile Leu Arg Glu 805 810 815		
Val Gln Gln Phe His Pro Asp Val Arg Asn Ser Pro Glu Val Asn Phe 820 825 830		
Ala Val Gln Ala Phe Ala Ala Leu Asn Ser Asn Asn Phe Val Arg Phe 835 840 845		
Phe Lys Leu Val Gln Ser Ala Ser Tyr Leu Asn Ala Cys Leu Leu His 850 855 860		
Cys Tyr Phe Asn Gln Ile Arg Lys Asp Ala Leu Arg Ala Leu Asn Val 865 870 875 880		
Ala Tyr Thr Val Ser Thr Gln Arg Ser Thr Val Phe Pro Leu Asp Gly 885 890 895		
Val Val Arg Met Leu Leu Phe Arg Asp Ser Glu Glu Ala Thr Asn Phe 900 905 910		
Leu Asn Tyr His Gly Leu Thr Val Ala Asp Gly Cys Val Glu Leu Asn 915 920 925		

Arg Ser Ala Phe Leu Glu Pro Glu Gly Leu Cys Lys Ala Arg Lys Ser
 930 935 940

Val Phe Ile Gly Arg Lys Leu Thr Val Ser Val Gly Glu Val Val Asn
 945 950 955 960

Gly Gly Pro Leu Pro Pro Val Pro Arg His Thr Pro Val Cys Ser Phe
 965 970 975

Asn Ser Gln Asn Lys Tyr Val Gly Glu Ser Leu Ala Thr Glu Leu Pro
 980 985 990

Ile Ser Thr Gln Arg Ala Gly Gly Asp Pro Ala Gly Gly Gly Arg Gly
 995 1000 1005

Glu Asp Cys Glu Ala Glu Val Asp Leu Pro Thr Leu Ala Val Leu
 1010 1015 1020

Pro Gln Pro Pro Pro Ala Ser Ser Ala Thr Pro Ala Leu His Val
 1025 1030 1035

Gln Pro Leu Ala Pro Ala Ala Ala Pro Ser Leu Leu Gln Ala Ser
 1040 1045 1050

Thr Gln Pro Glu Val Leu Leu Pro Lys Pro Ala Pro Val Tyr Ser
 1055 1060 1065

Asp Ser Asp Leu Val Gln Val Val Asp Glu Leu Ile Gln Glu Ala
 1070 1075 1080

Leu Gln Val Asp Cys Glu Glu Val Ser Ser Ala Gly Ala Ala Tyr
 1085 1090 1095

Val Ala Ala Ala Leu Gly Val Ser Asn Ala Ala Val Glu Asp Leu
 1100 1105 1110

Ile Thr Ala Ala Thr Thr Gly Ile Leu Arg His Val Ala Ala Glu
 1115 1120 1125

Glu Val Ser Met Glu Arg Gln Arg Leu Glu Glu Glu Lys Gln Arg
 1130 1135 1140

Ala	Glu	Glu	Glu	Arg	Leu	Lys	Gln	Glu	Arg	Glu	Leu	Met	Leu	Thr
1145						1150					1155			
Gln	Leu	Ser	Glu	Gly	Leu	Ala	Ala	Glu	Leu	Thr	Glu	Leu	Thr	Val
1160						1165					1170			
Thr	Glu	Cys	Val	Trp	Glu	Thr	Cys	Ser	Gln	Glu	Leu	Gln	Ser	Ala
1175						1180					1185			
Val	Lys	Ile	Asp	Gln	Lys	Val	Arg	Val	Ala	Arg	Cys	Cys	Glu	Ala
1190						1195					1200			
Val	Cys	Ala	His	Leu	Val	Asp	Leu	Phe	Leu	Ala	Glu	Glu	Ile	Phe
1205						1210					1215			
Gln	Thr	Ala	Lys	Glu	Thr	Leu	Gln	Glu	Leu	Gln	Cys	Phe	Cys	Lys
1220						1225					1230			
Tyr	Leu	Gln	Arg	Trp	Arg	Glu	Ala	Val	Ala	Ala	Arg	Lys	Lys	Phe
1235						1240					1245			
Arg	Arg	Gln	Met	Arg	Ala	Phe	Pro	Ala	Ala	Pro	Cys	Cys	Val	Asp
1250						1255					1260			
Val	Asn	Asp	Arg	Leu	Gln	Ala	Leu	Val	Pro	Ser	Ala	Glu	Cys	Pro
1265						1270					1275			
Ile	Thr	Glu	Glu	Asn	Leu	Ala	Lys	Gly	Leu	Leu	Asp	Leu	Gly	His
1280						1285					1290			
Ala	Gly	Lys	Val	Gly	Val	Ser	Cys	Thr	Arg	Leu	Arg	Arg	Leu	Arg
1295						1300					1305			
Asn	Lys	Thr	Ala	His	Gln	Ile	Lys	Val	Gln	His	Phe	His	Gln	Gln
1310						1315					1320			
Leu	Leu	Arg	Asn	Ala	Ala	Trp	Ala	Pro	Leu	Asp	Leu	Pro	Ser	Ile
1325						1330					1335			
Val	Ser	Glu	His	Leu	Pro	Met	Lys	Gln	Lys	Arg	Arg	Phe	Trp	Lys
1340						1345					1350			

Leu Val 1355	Leu Val	Leu Pro	Asp 1360	Val Glu Glu Gln Thr 1365	Pro Glu Ser
Pro Gly 1370	Arg Ile	Leu Glu	Asn 1375	Trp Leu Lys Val Lys 1380	Phe Thr Gly
Asp Asp 1385	Ser Met	Val Gly	Asp 1390	Ile Gly Asp Asn Ala 1395	Gly Asp Ile
Gln Thr 1400	Leu Ser	Val Phe	Asn 1405	Thr Leu Ser Ser Lys 1410	Gly Asp Gln
Thr Val 1415	Ser Val	Asn Val	Cys 1420	Ile Lys Val Ala His 1425	Gly Thr Leu
Ser Asp 1430	Ser Ala	Leu Asp	Ala 1435	Val Glu Thr Gln Lys 1440	Asp Leu Leu
Gly Thr 1445	Ser Gly	Leu Met	Leu 1450	Leu Leu Pro Pro Lys 1455	Val Lys Ser
Glu Glu 1460	Val Ala	Glu Glu	Glu 1465	Leu Ser Trp Leu Ser 1470	Ala Leu Leu
Gln Leu 1475	Lys Gln	Leu Leu	Gln 1480	Ala Lys Pro Phe Gln 1485	Pro Ala Leu
Pro Leu 1490	Val Val	Leu Val	Pro 1495	Ser Ser Arg Gly Asp 1500	Ser Ala Gly
Arg Ala 1505	Val Glu	Asp Gly	Leu 1510	Met Leu Gln Asp Leu 1515	Val Ser Ala
Lys Leu 1520	Ile Ser	Asp Tyr	Ile 1525	Val Val Glu Ile Pro 1530	Asp Ser Val
Asn Asp 1535	Leu Gln	Gly Thr	Val 1540	Lys Val Ser Gly Ala 1545	Val Gln Trp
Leu Ile 1550	Ser Gly	Cys Pro	Gln 1555	Ala Leu Asp Leu Cys 1560	Cys Gln Thr
Leu Val	Gln Tyr	Val Glu	Asp	Gly Ile Ser Arg Glu	Phe Ser Arg

1565		1570		1575
Arg Phe Phe His Asp Arg Arg Glu Arg Arg Leu Ala Ser Leu Pro				
1580		1585		1590
Ser Gln Glu Pro Ser Thr Ile Ile Glu Leu Phe Asn Ser Val Leu				
1595		1600		1605
Gln Phe Leu Ala Ser Val Val Ser Ser Glu Gln Leu Cys Asp Ile				
1610		1615		1620
Ser Trp Pro Val Met Glu Phe Ala Glu Val Gly Gly Ser Gln Leu				
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Leu Pro His Leu His Trp Asn Ser Pro Glu His Leu Ala Trp Leu				
1640		1645		1650
Lys Gln Ala Val Leu Gly Phe Gln Leu Pro Gln Met Asp Leu Pro				
1655		1660		1665
Pro Pro Gly Ala Pro Trp Leu Pro Val Cys Ser Met Val Ile Gln				
1670		1675		1680
Tyr Thr Ser Gln Ile Pro Ser Ser Ser Gln Thr Gln Pro Val Leu				
1685		1690		1695
Gln Ser Gln Ala Glu Asn Leu Leu Cys Arg Thr Tyr Gln Lys Trp				
1700		1705		1710
Lys Asn Lys Ser Leu Ser Pro Gly Gln Glu Leu Gly Pro Ser Val				
1715		1720		1725
Ala Glu Ile Pro Trp Asp Asp Ile Ile Thr Leu Cys Ile Asn His				
1730		1735		1740
Lys Leu Arg Asp Trp Thr Pro Pro Arg Leu Pro Val Thr Leu Glu				
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Ala Leu Ser Glu Asp Gly Gln Ile Cys Val Tyr Phe Phe Lys Asn				
1760		1765		1770
Leu Leu Arg Lys Tyr His Val Pro Ser Ser Trp Glu Gln Ala Arg				
1775		1780		1785

Met Gln Thr Gln Arg Glu Leu Gln Leu Ser His Gly Arg Ser Gly
 1790 1795 1800

Met Arg Ser Ile His Pro Pro Thr Ser Thr Phe Pro Thr Pro Leu
 1805 1810 1815

Leu His Val His Gln Lys Gly Lys Lys Lys Glu Glu Ser Gly Arg
 1820 1825 1830

Glu Gly Ser Leu Ser Thr Glu Asp Leu Leu Arg Gly Ala Ser Ala
 1835 1840 1845

Glu Glu Leu Leu Ala Gln Ser Leu Ser Ser Ser Leu Leu Glu Glu
 1850 1855 1860

Lys Glu Glu Asn Lys Arg Phe Glu Asp Gln Leu Gln Gln Trp Leu
 1865 1870 1875

Ser Gln Asp Ser Gln Ala Phe Thr Glu Ser Thr Arg Leu Pro Leu
 1880 1885 1890

Tyr Leu Pro Gln Thr Leu Val Ser Phe Pro Asp Ser Ile Lys Thr
 1895 1900 1905

Gln Thr Met Val Lys Thr Ser Thr Ser Pro Gln Asn Ser Gly Thr
 1910 1915 1920

Gly Lys Gln Leu Arg Phe Ser Glu Ala Ser Gly Ser Ser Leu Thr
 1925 1930 1935

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Phe Ser Gly Gln Gln Pro Ser Ala Phe Ser Ala Ser Ser Ser Asn Val
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gga aca ctt cca tct aag ccg cca ttt cga ttt ggt caa cct tct ctt      151
Gly Thr Leu Pro Ser Lys Pro Pro Phe Arg Phe Gly Gln Pro Ser Leu
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ttt gga caa aac agt acc tta tct ggg aag agc tcg gga ttt tca cag      199
Phe Gly Gln Asn Ser Thr Leu Ser Gly Lys Ser Ser Gly Phe Ser Gln
                40                45                50

gta tcc agc ttt cca gcg tct tct gga gta agt cat tcc tct tca gtg      247
Val Ser Ser Phe Pro Ala Ser Ser Gly Val Ser His Ser Ser Ser Val
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caa aca tta ggg ttc acc caa acc tca agt gtt gga ccc ttt tct gga      295
Gln Thr Leu Gly Phe Thr Gln Thr Ser Ser Val Gly Pro Phe Ser Gly
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ctt gag cac act tcc acc ttt gtg gct acc tct ggg cct tca agt tca      343
Leu Glu His Thr Ser Thr Phe Val Ala Thr Ser Gly Pro Ser Ser Ser
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tct gtg ctg gga aac aca gga ttt agt ttt aaa tca ccc acc agt gtt      391
Ser Val Leu Gly Asn Thr Gly Phe Ser Phe Lys Ser Pro Thr Ser Val
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ggg gct ttc cca agc act tct gct ttt gga caa gaa gct gga gaa ata      439
Gly Ala Phe Pro Ser Thr Ser Ala Phe Gly Gln Glu Ala Gly Glu Ile
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gtg aac tct ggt ttt ggg aaa aca gaa ttc agc ttt aaa cct ctg gaa      487
Val Asn Ser Gly Phe Gly Lys Thr Glu Phe Ser Phe Lys Pro Leu Glu
135                140                145                150

aat gca gtg ttc aaa cca ata ctg ggg gct gaa tct gag cca gag aaa      535
Asn Ala Val Phe Lys Pro Ile Leu Gly Ala Glu Ser Glu Pro Glu Lys
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acc cag agc caa att gct tct ggg ttt ttt aca ttt tcc cac cca att      583
Thr Gln Ser Gln Ile Ala Ser Gly Phe Phe Thr Phe Ser His Pro Ile
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agt agt gca cct gga ggc ctg gcc cct ttc tct ttt cct caa gta aca      631
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agt	agt	tca	gct	acc	act	tca	aat	ttt	acc	ttt	tca	aaa	cct	gtt	agt	679	
Ser	Ser	Ser	Ala	Thr	Thr	Ser	Asn	Phe	Thr	Phe	Ser	Lys	Pro	Val	Ser		
		200					205				210						
agt	aat	aat	tca	tta	tct	gcc	ttt	acc	cct	gct	ttg	tca	aac	caa	aat	727	
Ser	Asn	Asn	Ser	Leu	Ser	Ala	Phe	Thr	Pro	Ala	Leu	Ser	Asn	Gln	Asn		
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gta	gag	gaa	gag	aag	aga	gga	cct	aag	tca	ata	ttt	gga	agt	tct	aat	775	
Val	Glu	Glu	Glu	Lys	Arg	Gly	Pro	Lys	Ser	Ile	Phe	Gly	Ser	Ser	Asn		
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aat	agc	ttc	agt	agc	ttc	cct	gta	tca	tct	gcg	gtt	ttg	ggc	gaa	cct	823	
Asn	Ser	Phe	Ser	Ser	Phe	Pro	Val	Ser	Ser	Ala	Val	Leu	Gly	Glu	Pro		
			250					255					260				
ttc	cag	gct	agc	aaa	gca	ggc	gtc	agg	cag	ggg	tgt	gaa	gaa	gct	gtt	871	
Phe	Gln	Ala	Ser	Lys	Ala	Gly	Val	Arg	Gln	Gly	Cys	Glu	Glu	Ala	Val		
		265					270					275					
tcc	cag	gtg	gaa	cca	ctt	ccc	agc	cta	atg	aaa	gga	ctg	aaa	agg	aag	919	
Ser	Gln	Val	Glu	Pro	Leu	Pro	Ser	Leu	Met	Lys	Gly	Leu	Lys	Arg	Lys		
		280				285					290						
gag	gac	cag	gat	cgc	tcc	cca	agg	aga	cat	ggc	cac	gag	cca	gca	gaa	967	
Glu	Asp	Gln	Asp	Arg	Ser	Pro	Arg	Arg	His	Gly	His	Glu	Pro	Ala	Glu		
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gat	tcg	gat	cct	ctg	tcc	cgg	ggc	gat	cat	cct	cca	gac	aaa	cga	cct	1015	
Asp	Ser	Asp	Pro	Leu	Ser	Arg	Gly	Asp	His	Pro	Pro	Asp	Lys	Arg	Pro		
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gtc	cgc	ctg	aat	cga	ccc	cgg	gga	ggc	act	tta	ttt	ggc	cgg	acg	ata	1063	
Val	Arg	Leu	Asn	Arg	Pro	Arg	Gly	Gly	Thr	Leu	Phe	Gly	Arg	Thr	Ile		
			330					335					340				
cag	gat	gtt	ttc	aaa	agc	aat	aag	gaa	gta	ggc	cgt	ctg	ggc	aac	aag	1111	
Gln	Asp	Val	Phe	Lys	Ser	Asn	Lys	Glu	Val	Gly	Arg	Leu	Gly	Asn	Lys		
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gag	gcc	aaa	aag	gaa	act	ggc	ttt	gtt	gag	tct	gca	gaa	agt	gac	cac	1159	
Glu	Ala	Lys	Lys	Glu	Thr	Gly	Phe	Val	Glu	Ser	Ala	Glu	Ser	Asp	His		
		360				365					370						
atg	gct	atc	cca	gga	ggg	aat	cag	tct	gtc	ctg	gca	cct	tcc	cgg	att	1207	
Met	Ala	Ile	Pro	Gly	Gly	Asn	Gln	Ser	Val	Leu	Ala	Pro	Ser	Arg	Ile		
				380						385					390		
cca	ggc	gtg	aat	aaa	gag	gaa	gaa	act	gaa	agt	aga	gag	aag	aaa	gaa	1255	
Pro	Gly	Val	Asn	Lys	Glu	Glu	Glu	Thr	Glu	Ser	Arg	Glu	Lys	Lys	Glu		
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gat	tct	cta	aga	gga	act	ccg	gcg	cgt	cag	agt	aac	aga	agc	gag	agc	1303	
Asp	Ser	Leu	Arg	Gly	Thr	Pro	Ala	Arg	Gln	Ser	Asn	Arg	Ser	Glu	Ser		

410										415					420					
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Thr	Asp	Ser	Leu	Gly	Gly	Leu	Ser	Pro	Ser	Glu	Val	Thr	Ala	Ile	Gln					
425				430				435												
tgc	aag	aac	atc	cct	gac	tac	ctc	aac	gac	agg	acc	att	ctg	gag	aac	1399				
Cys	Lys	Asn	Ile	Pro	Asp	Tyr	Leu	Asn	Asp	Arg	Thr	Ile	Leu	Glu	Asn					
440				445				450												
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Lys	Lys	Leu	Ala	Val	Val	His	Phe	Phe	Asp	His	Ala	Ser	Ala	Ala	Leu					
475				480				485												
gct	aga	aag	aag	ggg	aaa	agt	ttg	cat	aaa	gac	atg	gct	atc	ttt	tgg	1543				
Ala	Arg	Lys	Lys	Gly	Lys	Ser	Leu	His	Lys	Asp	Met	Ala	Ile	Phe	Trp					
490				495				500												
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His	Arg	Lys	Lys	Ile	Ser	Pro	Asn	Lys	Lys	Pro	Phe	Ser	Leu	Lys	Glu					
505				510				515												
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Lys	Lys	Pro	Gly	Asp	Gly	Glu	Val	Ser	Pro	Ser	Thr	Glu	Asp	Ala	Pro					
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Phe	Gln	His	Ser	Pro	Leu	Gly	Lys	Ala	Ala	Gly	Arg	Thr	Gly	Ala	Ser					
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agc	ctc	ctg	aat	aaa	agc	tct	cca	gtg	aag	aag	cca	agt	ctt	cta	aag	1735				
Ser	Leu	Leu	Asn	Lys	Ser	Ser	Pro	Val	Lys	Lys	Pro	Ser	Leu	Leu	Lys					
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gcc	cac	caa	ttc	gag	gga	gac	tct	ttt	gac	tca	gcc	tcc	gag	ggc	tcc	1783				
Ala	His	Gln	Phe	Glu	Gly	Asp	Ser	Phe	Asp	Ser	Ala	Ser	Glu	Gly	Ser					
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Glu	Gly	Leu	Gly	Pro	Cys	Val	Leu	Ser	Leu	Ser	Thr	Leu	Ile	Gly	Thr					
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gtg	gct	gag	aca	tcc	aag	gag	aag	tac	cgc	ctg	ctt	gac	cag	aga	gac	1879				
Val	Ala	Glu	Thr	Ser	Lys	Glu	Lys	Tyr	Arg	Leu	Leu	Asp	Gln	Arg	Asp					
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Arg	Ile	Met	Arg	Gln	Ala	Arg	Val	Lys	Arg	Thr	Asp	Leu	Asp	Lys	Ala					
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gcc cac ttc atg tgt gag gag ccc atg tcc tcc ttt gat gcc aag atc Ala His Phe Met Cys Glu Glu Pro Met Ser Ser Phe Asp Ala Lys Ile 760 765 770	2359
aat aat gag aac atg acc aag tgc ctg cag agc ctg aag gag atg tac Asn Asn Glu Asn Met Thr Lys Cys Leu Gln Ser Leu Lys Glu Met Tyr 775 780 785 790	2407
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cag ggc tac aat gtt ctg ctc agt ctc aac aag gga gac atc cta aga Gln Gly Tyr Asn Val Leu Leu Ser Leu Asn Lys Gly Asp Ile Leu Arg 810 815 820	2503
gaa gta caa cag ttc cat cct gct gtt aga aac tca tct gag gtg aaa Glu Val Gln Gln Phe His Pro Ala Val Arg Asn Ser Ser Glu Val Lys 825 830 835	2551
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cac tgt tac ttc agt cag atc cgc aag gat gct ctc cgg gcg ctc aac His Cys Tyr Phe Ser Gln Ile Arg Lys Asp Ala Leu Arg Ala Leu Asn 875 880 885	2695
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ggt gtg gtg cgc atg ctg ctg ttc aga gac tgt gaa gag gcc acc gac Gly Val Val Arg Met Leu Leu Phe Arg Asp Cys Glu Glu Ala Thr Asp 905 910 915	2791
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aac cgg tct gca ttc ctg gaa cca gag gga tta tcc aag acc agg aag Asn Arg Ser Ala Phe Leu Glu Pro Glu Gly Leu Ser Lys Thr Arg Lys 935 940 945 950	2887
tcg gtg ttt att act agg aag ctg acg gtg tca gtc ggg gaa att gtg Ser Val Phe Ile Thr Arg Lys Leu Thr Val Ser Val Gly Glu Ile Val 955 960 965	2935
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ccc gtc agc acc cag aga ccc ggc tcc gac aca gtg ggc gga ggg Pro Val Ser Thr Gln Arg Pro Gly Ser Asp Thr Val Gly Gly Gly 1000 1005 1010	3076
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ctc cca cag tct cta cca gcc cct gcg ccc tca cca gtg cct ctg Leu Pro Gln Ser Leu Pro Ala Pro Ala Pro Ser Pro Val Pro Leu 1030 1035 1040	3166
cct cct gtc ctg gca ctg acc ccg tct gtg gcg ccc agc ctc ttc Pro Pro Val Leu Ala Leu Thr Pro Ser Val Ala Pro Ser Leu Phe 1045 1050 1055	3211
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Gln	Glu	Ala	Leu	Gln	Arg	Asp	Cys	Glu	Glu	Val	Gly	Ser	Ala	Gly		
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gct	gcc	tac	gca	gct	gcc	gcc	ctg	ggc	gtt	tct	aat	gct	gct	atg	3391	
Ala	Ala	Tyr	Ala	Ala	Ala	Ala	Leu	Gly	Val	Ser	Asn	Ala	Ala	Met		
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Glu	Asp	Leu	Leu	Thr	Ala	Ala	Thr	Thr	Gly	Ile	Leu	Arg	His	Ile		
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Ala	Ala	Glu	Glu	Val	Ser	Lys	Glu	Arg	Glu	Arg	Arg	Glu	Gln	Glu		
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Arg	Gln	Arg	Ala	Glu	Glu	Glu	Arg	Leu	Lys	Gln	Glu	Arg	Glu	Leu		
1150						1155					1160					
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Val	Leu	Ser	Glu	Leu	Ser	Gln	Gly	Leu	Ala	Val	Glu	Leu	Met	Glu		
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Arg	Val	Met	Met	Glu	Phe	Val	Arg	Glu	Thr	Cys	Ser	Gln	Glu	Leu		
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Lys	Asn	Ala	Val	Glu	Thr	Asp	Gln	Arg	Val	Arg	Val	Ala	Arg	Cys		
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Cys	Glu	Asp	Val	Cys	Ala	His	Leu	Val	Asp	Leu	Phe	Leu	Val	Glu		
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Phe	Cys	Lys	Tyr	Leu	Gln	Arg	Trp	Arg	Glu	Ala	Val	Thr	Ala	Arg		
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Lys	Lys	Leu	Arg	Arg	Gln	Met	Arg	Ala	Phe	Pro	Ala	Ala	Pro	Cys		
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Cys	Val	Asp	Val	Ser	Asp	Arg	Leu	Arg	Ala	Leu	Ala	Pro	Ser	Ala		
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Glu	Cys	Pro	Ile	Ala	Glu	Glu	Asn	Leu	Ala	Arg	Gly	Leu	Leu	Asp		
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Leu	Gly	His	Ala	Gly	Arg	Leu	Gly	Ile	Ser	Cys	Thr	Arg	Leu	Arg		

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Arg Leu Arg Asn Lys Thr Ala His Gln Met Lys Val Gln His Phe			
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Tyr Gln Gln Leu Leu Ser Asp Val Ala Trp Ala Ser Leu Asp Leu			
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Pro Ser Leu Val Ala Glu His Leu Pro Gly Arg Gln Glu His Val			
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Phe Trp Lys Leu Val Leu Val Leu Pro Asp Val Glu Glu Gln Ser			
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Pro Glu Ser Cys Gly Arg Ile Leu Ala Asn Trp Leu Lys Val Lys			
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Ala Leu Leu Gln Leu Lys Gln Leu Leu Gln Ala Lys Pro Phe Gln			
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Pro Ala Leu Pro Leu Val Val Leu Val Pro Ser Pro Gly Gly Asp			
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Ile Asn His Lys Leu Arg Asp		Trp Thr Pro Pro Arg Leu Pro Val			
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Ile Pro Leu Leu His Met His		Arg Asn Trp Lys Arg Ser Thr Glu			
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Cys Ala Gln Glu Gly Arg Ile		Pro Ser Thr Glu Asp Leu Met Arg			
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Gly Ala Ser Ala Glu Glu Leu		Leu Ala Gln Cys Leu Ser Ser Ser			
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Gln Gln Trp Leu Ser Glu Asp		Ser Gly Ala Phe Thr Asp Leu Thr			
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Thr Ile Glu Pro Val Met Lys		Thr Ser Val Thr Thr Ser Pro Gln			
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Ser Asp Met Met Arg Glu Gln		Leu Gln Leu Ser Glu Ala Thr Gly			
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Thr Cys Leu Gly Glu Arg Leu Lys His Leu Glu Arg Leu Ile Arg
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 Leu Leu Asp Met Val Asp Ile
 1975 1980
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 <213> Homo sapiens

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 Ser His Ser Ser Ser Val Gln Thr Leu Gly Phe Thr Gln Thr Ser Ser
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 Val Gly Pro Phe Ser Gly Leu Glu His Thr Ser Thr Phe Val Ala Thr
 85 90 95

 Ser Gly Pro Ser Ser Ser Ser Val Leu Gly Asn Thr Gly Phe Ser Phe
 100 105 110

 Lys Ser Pro Thr Ser Val Gly Ala Phe Pro Ser Thr Ser Ala Phe Gly
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 Gln Glu Ala Gly Glu Ile Val Asn Ser Gly Phe Gly Lys Thr Glu Phe
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Ser Phe Lys Pro Leu Glu Asn Ala Val Phe Lys Pro Ile Leu Gly Ala
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Glu Ser Glu Pro Glu Lys Thr Gln Ser Gln Ile Ala Ser Gly Phe Phe
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Thr Phe Ser His Pro Ile Ser Ser Ala Pro Gly Gly Leu Ala Pro Phe
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Ala Leu Ser Asn Gln Asn Val Glu Glu Glu Lys Arg Gly Pro Lys Ser
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Leu Phe Gly Arg Thr Ile Gln Asp Val Phe Lys Ser Asn Lys Glu Val
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Ile Phe Thr Arg Arg Ser Lys Lys Leu Ala Val Val His Phe Phe Asp
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His Ala Ser Ala Ala Leu Ala Arg Lys Lys Gly Lys Ser Leu His Lys
 485 490 495

Asp Met Ala Ile Phe Trp His Arg Lys Lys Ile Ser Pro Asn Lys Lys
 500 505 510

Pro Phe Ser Leu Lys Glu Lys Lys Pro Gly Asp Gly Glu Val Ser Pro
 515 520 525

Ser Thr Glu Asp Ala Pro Phe Gln His Ser Pro Leu Gly Lys Ala Ala
 530 535 540

Gly Arg Thr Gly Ala Ser Ser Leu Leu Asn Lys Ser Ser Pro Val Lys
 545 550 555 560

Lys Pro Ser Leu Leu Lys Ala His Gln Phe Glu Gly Asp Ser Phe Asp
 565 570 575

Ser Ala Ser Glu Gly Ser Glu Gly Leu Gly Pro Cys Val Leu Ser Leu
 580 585 590

Ser Thr Leu Ile Gly Thr Val Ala Glu Thr Ser Lys Glu Lys Tyr Arg
595 600 605

Leu Leu Asp Gln Arg Asp Arg Ile Met Arg Gln Ala Arg Val Lys Arg
610 615 620

Thr Asp Leu Asp Lys Ala Arg Thr Phe Val Gly Thr Cys Leu Asp Met
625 630 635 640

Cys Pro Glu Lys Glu Arg Tyr Met Arg Glu Thr Arg Ser Gln Leu Ser
645 650 655

Val Phe Glu Val Val Pro Gly Thr Asp Gln Val Asp His Ala Ala Ala
660 665 670

Val Lys Glu Tyr Ser Arg Ser Ser Ala Asp Gln Glu Glu Pro Leu Pro
675 680 685

His Glu Leu Arg Pro Leu Pro Val Leu Ser Arg Thr Met Asp Tyr Leu
690 695 700

Val Thr Gln Ile Met Asp Gln Lys Glu Gly Ser Leu Arg Asp Trp Tyr
705 710 715 720

Asp Phe Val Trp Asn Arg Thr Arg Gly Ile Arg Lys Asp Ile Thr Gln
725 730 735

Gln His Leu Cys Asp Pro Leu Thr Val Ser Leu Ile Glu Lys Cys Thr
740 745 750

Arg Phe His Ile His Cys Ala His Phe Met Cys Glu Glu Pro Met Ser
755 760 765

Ser Phe Asp Ala Lys Ile Asn Asn Glu Asn Met Thr Lys Cys Leu Gln
770 775 780

Ser Leu Lys Glu Met Tyr Gln Asp Leu Arg Asn Lys Gly Val Phe Cys
785 790 795 800

Ala Ser Glu Ala Glu Phe Gln Gly Tyr Asn Val Leu Leu Ser Leu Asn
805 810 815

Lys Gly Asp Ile Leu Arg Glu Val Gln Gln Phe His Pro Ala Val Arg

820	825	830
Asn Ser Ser Glu Val Lys Phe Ala Val Gln Ala Phe Ala Ala Leu Asn		
835	840	845
Ser Asn Asn Phe Val Arg Phe Phe Lys Leu Val Gln Ser Ala Ser Tyr		
850	855	860
Leu Asn Ala Cys Leu Leu His Cys Tyr Phe Ser Gln Ile Arg Lys Asp		
865	870	875
Ala Leu Arg Ala Leu Asn Phe Ala Tyr Thr Val Ser Thr Gln Arg Ser		
885	890	895
Thr Ile Phe Pro Leu Asp Gly Val Val Arg Met Leu Leu Phe Arg Asp		
900	905	910
Cys Glu Glu Ala Thr Asp Phe Leu Thr Cys His Gly Leu Thr Val Ser		
915	920	925
Asp Gly Cys Val Glu Leu Asn Arg Ser Ala Phe Leu Glu Pro Glu Gly		
930	935	940
Leu Ser Lys Thr Arg Lys Ser Val Phe Ile Thr Arg Lys Leu Thr Val		
945	950	955
Ser Val Gly Glu Ile Val Asn Gly Gly Pro Leu Pro Pro Val Pro Arg		
965	970	975
His Thr Pro Val Cys Ser Phe Asn Ser Gln Asn Lys Tyr Ile Gly Glu		
980	985	990
Ser Leu Ala Ala Glu Leu Pro Val Ser Thr Gln Arg Pro Gly Ser Asp		
995	1000	1005
Thr Val Gly Gly Gly Arg Gly Glu Glu Cys Gly Val Glu Pro Asp		
1010	1015	1020
Ala Pro Leu Ser Ser Leu Pro Gln Ser Leu Pro Ala Pro Ala Pro		
1025	1030	1035
Ser Pro Val Pro Leu Pro Pro Val Leu Ala Leu Thr Pro Ser Val		
1040	1045	1050

Ala	Pro	Ser	Leu	Phe	Gln	Leu	Ser	Val	Gln	Pro	Glu	Pro	Pro	Pro
1055						1060					1065			
Pro	Glu	Pro	Val	Pro	Met	Tyr	Ser	Asp	Glu	Asp	Leu	Ala	Gln	Val
1070						1075					1080			
Val	Asp	Glu	Leu	Ile	Gln	Glu	Ala	Leu	Gln	Arg	Asp	Cys	Glu	Glu
1085						1090					1095			
Val	Gly	Ser	Ala	Gly	Ala	Ala	Tyr	Ala	Ala	Ala	Ala	Leu	Gly	Val
1100						1105					1110			
Ser	Asn	Ala	Ala	Met	Glu	Asp	Leu	Leu	Thr	Ala	Ala	Thr	Thr	Gly
1115						1120					1125			
Ile	Leu	Arg	His	Ile	Ala	Ala	Glu	Glu	Val	Ser	Lys	Glu	Arg	Glu
1130						1135					1140			
Arg	Arg	Glu	Gln	Glu	Arg	Gln	Arg	Ala	Glu	Glu	Glu	Arg	Leu	Lys
1145						1150					1155			
Gln	Glu	Arg	Glu	Leu	Val	Leu	Ser	Glu	Leu	Ser	Gln	Gly	Leu	Ala
1160						1165					1170			
Val	Glu	Leu	Met	Glu	Arg	Val	Met	Met	Glu	Phe	Val	Arg	Glu	Thr
1175						1180					1185			
Cys	Ser	Gln	Glu	Leu	Lys	Asn	Ala	Val	Glu	Thr	Asp	Gln	Arg	Val
1190						1195					1200			
Arg	Val	Ala	Arg	Cys	Cys	Glu	Asp	Val	Cys	Ala	His	Leu	Val	Asp
1205						1210					1215			
Leu	Phe	Leu	Val	Glu	Glu	Ile	Phe	Gln	Thr	Ala	Lys	Glu	Thr	Leu
1220						1225					1230			
Gln	Glu	Leu	Gln	Cys	Phe	Cys	Lys	Tyr	Leu	Gln	Arg	Trp	Arg	Glu
1235						1240					1245			
Ala	Val	Thr	Ala	Arg	Lys	Lys	Leu	Arg	Arg	Gln	Met	Arg	Ala	Phe
1250						1255					1260			

Pro Ala Ala Pro Cys Cys Val Asp Val Ser Asp Arg Leu Arg Ala
 1265 1270 1275

Leu Ala Pro Ser Ala Glu Cys Pro Ile Ala Glu Glu Asn Leu Ala
 1280 1285 1290

Arg Gly Leu Leu Asp Leu Gly His Ala Gly Arg Leu Gly Ile Ser
 1295 1300 1305

Cys Thr Arg Leu Arg Arg Leu Arg Asn Lys Thr Ala His Gln Met
 1310 1315 1320

Lys Val Gln His Phe Tyr Gln Gln Leu Leu Ser Asp Val Ala Trp
 1325 1330 1335

Ala Ser Leu Asp Leu Pro Ser Leu Val Ala Glu His Leu Pro Gly
 1340 1345 1350

Arg Gln Glu His Val Phe Trp Lys Leu Val Leu Val Leu Pro Asp
 1355 1360 1365

Val Glu Glu Gln Ser Pro Glu Ser Cys Gly Arg Ile Leu Ala Asn
 1370 1375 1380

Trp Leu Lys Val Lys Phe Met Gly Asp Glu Gly Ser Val Asp Asp
 1385 1390 1395

Thr Ser Ser Asp Ala Gly Gly Ile Gln Thr Leu Ser Leu Phe Asn
 1400 1405 1410

Ser Leu Ser Ser Lys Gly Asp Gln Met Ile Ser Val Asn Val Cys
 1415 1420 1425

Ile Lys Val Ala His Gly Ala Leu Ser Asp Gly Ala Ile Asp Ala
 1430 1435 1440

Val Glu Thr Gln Lys Asp Leu Leu Gly Ala Ser Gly Leu Met Leu
 1445 1450 1455

Leu Leu Pro Pro Lys Met Lys Ser Glu Asp Met Ala Glu Glu Asp
 1460 1465 1470

Val Tyr Trp Leu Ser Ala Leu Leu Gln Leu Lys Gln Leu Leu Gln
 1475 1480 1485

Ala Lys Pro Phe Gln Pro Ala Leu Pro Leu Val Val Leu Val Pro
 1490 1495 1500

Ser Pro Gly Gly Asp Ala Val Glu Lys Glu Val Glu Asp Gly Leu
 1505 1510 1515

Met Leu Gln Asp Leu Val Ser Ala Lys Leu Ile Ser Asp Tyr Thr
 1520 1525 1530

Val Thr Glu Ile Pro Asp Thr Ile Asn Asp Leu Gln Gly Ser Thr
 1535 1540 1545

Lys Val Leu Gln Ala Val Gln Trp Leu Val Ser His Cys Pro His
 1550 1555 1560

Ser Leu Asp Leu Cys Cys Gln Thr Leu Ile Gln Tyr Val Glu Asp
 1565 1570 1575

Gly Ile Gly His Glu Phe Ser Gly Arg Phe Phe His Asp Arg Arg
 1580 1585 1590

Glu Arg Arg Leu Gly Gly Leu Ala Ser Gln Glu Pro Gly Ala Ile
 1595 1600 1605

Ile Glu Leu Phe Asn Ser Val Leu Gln Phe Leu Ala Ser Val Val
 1610 1615 1620

Ser Ser Glu Gln Leu Cys Asp Leu Ser Trp Pro Val Thr Glu Phe
 1625 1630 1635

Ala Glu Ala Gly Gly Ser Arg Leu Leu Pro His Leu His Trp Asn
 1640 1645 1650

Ala Pro Glu His Leu Ala Trp Leu Lys Gln Ala Val Leu Gly Phe
 1655 1660 1665

Gln Leu Pro Gln Met Asp Leu Pro Pro Leu Gly Ala Pro Trp Leu
 1670 1675 1680

Pro Val Cys Ser Met Val Val Gln Tyr Ala Ser Gln Ile Pro Ser

1685		1690		1695
Ser Arg Gln Thr Gln Pro Val Leu Gln Ser Gln Val Glu Asn Leu				
1700		1705		1710
Leu His Arg Thr Tyr Cys Arg Trp Lys Ser Lys Ser Pro Ser Pro				
1715		1720		1725
Val His Gly Ala Gly Pro Ser Val Met Glu Ile Pro Trp Asp Asp				
1730		1735		1740
Leu Ile Ala Leu Cys Ile Asn His Lys Leu Arg Asp Trp Thr Pro				
1745		1750		1755
Pro Arg Leu Pro Val Thr Ser Glu Ala Leu Ser Glu Asp Gly Gln				
1760		1765		1770
Ile Cys Val Tyr Phe Phe Lys Asn Asp Leu Lys Lys Tyr Asp Val				
1775		1780		1785
Pro Leu Ser Trp Glu Gln Ala Arg Leu Gln Thr Gln Lys Glu Leu				
1790		1795		1800
Gln Leu Arg Glu Gly Arg Leu Ala Ile Lys Pro Phe His Pro Ser				
1805		1810		1815
Ala Asn Asn Phe Pro Ile Pro Leu Leu His Met His Arg Asn Trp				
1820		1825		1830
Lys Arg Ser Thr Glu Cys Ala Gln Glu Gly Arg Ile Pro Ser Thr				
1835		1840		1845
Glu Asp Leu Met Arg Gly Ala Ser Ala Glu Glu Leu Leu Ala Gln				
1850		1855		1860
Cys Leu Ser Ser Ser Leu Leu Leu Glu Lys Glu Glu Asn Lys Arg				
1865		1870		1875
Phe Glu Asp Gln Leu Gln Gln Trp Leu Ser Glu Asp Ser Gly Ala				
1880		1885		1890
Phe Thr Asp Leu Thr Ser Leu Pro Leu Tyr Leu Pro Gln Thr Leu				
1895		1900		1905

Val Ser Leu Ser His Thr Ile Glu Pro Val Met Lys Thr Ser Val
 1910 1915 1920

Thr Thr Ser Pro Gln Ser Asp Met Met Arg Glu Gln Leu Gln Leu
 1925 1930 1935

Ser Glu Ala Thr Gly Thr Cys Leu Gly Glu Arg Leu Lys His Leu
 1940 1945 1950

Glu Arg Leu Ile Arg Ser Ser Arg Glu Glu Glu Val Ala Ser Glu
 1955 1960 1965

Leu His Leu Ser Ala Leu Leu Asp Met Val Asp Ile
 1970 1975 1980

<210> 5
 <211> 863
 <212> PRT
 <213> retroviral provirus

<400> 5

Lys Glu Gln Lys Thr Val Ala Met Arg Val Lys Glu Lys Tyr Gln His
 1 5 10 15

Leu Trp Arg Trp Gly Trp Arg Trp Gly Thr Met Leu Leu Gly Met Leu
 20 25 30

Met Ile Cys Ser Ala Thr Glu Lys Leu Trp Val Thr Val Tyr Tyr Gly
 35 40 45

Val Pro Val Trp Lys Glu Ala Thr Thr Thr Leu Phe Cys Ala Ser Asp
 50 55 60

Ala Lys Ala Tyr Asp Thr Glu Val His Asn Val Trp Ala Thr His Ala
 65 70 75 80

Cys Val Pro Thr Asp Pro Asn Pro Gln Glu Val Val Leu Val Asn Val
 85 90 95

Thr Glu Asn Phe Asn Met Trp Lys Asn Asp Met Val Glu Gln Met His
 100 105 110

Glu Asp Ile Ile Ser Leu Trp Asp Gln Ser Leu Lys Pro Cys Val Lys
 115 120 125

Leu Thr Pro Leu Cys Val Ser Leu Lys Cys Thr Asp Leu Lys Asn Asp
 130 135 140

Thr Asn Thr Asn Ser Ser Ser Gly Arg Met Ile Met Glu Lys Gly Glu
 145 150 155 160

Ile Lys Asn Cys Ser Phe Asn Ile Ser Thr Ser Ile Arg Gly Lys Val
 165 170 175

Gln Lys Glu Tyr Ala Phe Phe Tyr Lys Leu Asp Ile Ile Pro Ile Asp
 180 185 190

Asn Asp Thr Thr Ser Tyr Thr Leu Thr Ser Cys Asn Thr Ser Val Ile
 195 200 205

Thr Gln Ala Cys Pro Lys Val Ser Phe Glu Pro Ile Pro Ile His Tyr
 210 215 220

Cys Ala Pro Ala Gly Phe Ala Ile Leu Lys Cys Asn Asn Lys Thr Phe
 225 230 235 240

Asn Gly Thr Gly Pro Cys Thr Asn Val Ser Thr Val Gln Cys Thr His
 245 250 255

Gly Ile Arg Pro Val Val Ser Thr Gln Leu Leu Leu Asn Gly Ser Leu
 260 265 270

Ala Glu Glu Glu Val Val Ile Arg Ser Ala Asn Phe Thr Asp Asn Ala
 275 280 285

Lys Thr Ile Ile Val Gln Leu Asn Gln Ser Val Glu Ile Asn Cys Thr
 290 295 300

Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile Arg Ile Gln Arg Gly Pro
 305 310 315 320

Gly Arg Ala Phe Val Thr Ile Gly Lys Ile Gly Asn Met Arg Gln Ala
 325 330 335

His Cys Asn Ile Ser Arg Ala Lys Trp Asn Asn Thr Leu Lys Gln Ile

340	345	350
Asp Ser Lys Leu Arg Glu Gln Phe Gly Asn Asn Lys Thr Ile Ile Phe 355 360 365		
Lys Gln Ser Ser Gly Gly Asp Pro Glu Ile Val Thr His Ser Phe Asn 370 375 380		
Cys Gly Gly Glu Phe Phe Tyr Cys Asn Ser Thr Gln Leu Phe Asn Ser 385 390 395 400		
Thr Trp Phe Asn Ser Thr Trp Ser Thr Lys Gly Ser Asn Asn Thr Glu 405 410 415		
Gly Ser Asp Thr Ile Thr Leu Pro Cys Arg Ile Lys Gln Ile Ile Asn 420 425 430		
Met Trp Gln Glu Val Gly Lys Ala Met Tyr Ala Pro Pro Ile Ser Gly 435 440 445		
Gln Ile Arg Cys Ser Ser Asn Ile Thr Gly Leu Leu Leu Thr Arg Asp 450 455 460		
Gly Gly Asn Ser Asn Asn Glu Ser Glu Ile Phe Arg Pro Gly Gly Gly 465 470 475 480		
Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val 485 490 495		
Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys Ala Lys Arg Arg Val 500 505 510		
Val Gln Arg Glu Lys Arg Ala Val Gly Ile Gly Ala Leu Phe Leu Gly 515 520 525		
Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Met Thr Leu 530 535 540		
Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Gln Asn 545 550 555 560		
Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr 565 570 575		

Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val Glu Arg
580 585 590

Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys
595 600 605

Leu Ile Cys Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys
610 615 620

Ser Leu Glu Gln Ile Trp Asn Asn Met Thr Trp Met Glu Trp Asp Arg
625 630 635 640

Glu Ile Asn Asn Tyr Thr Ser Leu Ile His Ser Leu Ile Glu Glu Ser
645 650 655

Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys
660 665 670

Trp Ala Ser Leu Trp Asn Trp Phe Asn Ile Thr Asn Trp Leu Trp Tyr
675 680 685

Ile Lys Leu Phe Ile Met Ile Val Gly Gly Leu Val Gly Leu Arg Ile
690 695 700

Val Phe Ala Val Leu Ser Val Val Asn Arg Val Arg Gln Gly Tyr Ser
705 710 715 720

Pro Leu Ser Phe Gln Thr His Leu Pro Ile Pro Arg Gly Pro Asp Arg
725 730 735

Pro Glu Gly Ile Glu Glu Glu Gly Gly Glu Arg Asp Arg Asp Arg Ser
740 745 750

Ile Arg Leu Val Asn Gly Ser Leu Ala Leu Ile Trp Asp Asp Leu Arg
755 760 765

Ser Leu Cys Leu Phe Ser Tyr His Arg Leu Arg Asp Leu Leu Leu Ile
770 775 780

Val Thr Arg Ile Val Glu Leu Leu Gly Arg Arg Gly Trp Glu Ala Leu
785 790 795 800

Lys Tyr Trp Trp Asn Leu Leu Gln Tyr Trp Ser Gln Glu Leu Lys Asn
805 810 815

Ser Ala Val Ser Leu Leu Asn Ala Thr Ala Ile Ala Val Ala Glu Gly
820 825 830

Thr Asp Arg Val Ile Glu Val Val Gln Gly Ala Tyr Arg Ala Ile Arg
835 840 845

His Ile Pro Arg Arg Ile Arg Gln Gly Leu Glu Arg Ile Leu Leu
850 855 860

<210> 6
<211> 23
<212> PRT
<213> retroviral provirus

<400> 6

Asn Asn Thr Arg Lys Ser Ile Arg Ile Gln Arg Gly Pro Gly Arg Ala
1 5 10 15

Phe Val Thr Ile Gly Lys Ile
20

<210> 7
<211> 20
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide primer

<400> 7
tcccgccttc cagctgtgac 20

<210> 8
<211> 20
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide primer

<400> 8
gtgctgctgt gttatgtcct 20

<210> 9

<211> 24
<212> PRT
<213> retroviral provirus

<400> 9

Cys Asn Asn Thr Arg Lys Ser Ile Arg Ile Gln Arg Gly Pro Gly Arg
1 5 10 15

Ala Phe Val Thr Ile Gly Lys Ile
20